

## WHAT IS CLAIMED IS:

1. A transmission for an all-terrain vehicle with an engine comprising:

a variable-speed drive operatively connected to the engine, and

a gear transmission mechanism operatively connected to the variable-speed drive, the gear transmission mechanism including:

a single shifting fork for selecting at least a forward high-speed ratio, a forward low-speed ratio, neutral or reverse,

a shifting lever disposed at a position below a right end part or a left end part of a handlebar at a level above the engine, the shifting lever extending substantially upward,

a single change lever shaft connected with the shifting fork, the change lever being disposed on the same side as the side on which the shifting lever is disposed with respect to a longitudinal center axis of the all-terrain vehicle, and the change lever shaft extending substantially upward at a rear end part of the engine, and

a single connecting member connecting the change lever shaft and the shifting lever, the connecting member extending at a side of the engine.

2. The transmission for an all-terrain vehicle according to claim 1, wherein the gear transmission mechanism further comprises a torsion coil spring wound around the change lever shaft so as to connect the change lever shaft and the shifting fork via the torsion coil spring.

3. The transmission for an all-terrain vehicle according to claim 1, wherein the gear transmission mechanism further comprises a gate member provided with a longitudinal guide slot for guiding the shifting lever, the guide slot being provided in the same side edge of right or left with retaining parts for retaining the shifting lever at positions corresponding to the forward low-speed ratio, the forward high-speed ratio, neutral and reverse.

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4. The transmission for an all-terrain vehicle according to claim 3, wherein an intermediate stopper for temporarily holding the shifting lever in a neutral state is formed in a section of the guide slot between the retaining part for the forward high-speed ratio and the retaining part for the forward low-speed ratio.

5. The transmission for an all-terrain vehicle according to claim 3, wherein the shifting lever is supported in a spherical bearing mechanism such that the shifting lever can be tilted forward, rearward, rightward and leftward, the shifting lever being biased by a spring toward the side edge of the guide slot in which the retaining parts are provided.

6. The transmission for an all-terrain vehicle according to claim 1, wherein the connecting member connecting the change lever shaft and the shifting lever is a substantially straight connecting rod.

7. A gear position detector for an all-terrain vehicle with a gear transmission mechanism disposed in a transmission case, the gear transmission mechanism including a shifting rod and a shifting sleeve and being capable of changing gear position by moving the shifting sleeve by an axial movement of the shifting rod, comprising:

a gear-position detecting switch mounted to the transmission case at a position near one axial end of the shifting rod, the gear-position detecting switch being configured to detect a neutral position when the axial end of the shifting rod axially moves to a neutral position and engages the gear-position detecting switch or a reverse position when the axial end of the shifting rod axially moves to a reverse position and engages the gear-position detecting switch.

8. The gear position detector for an all-terrain vehicle according to claim 7, wherein the gear transmission mechanism can be selectively placed in one of two forward speeds, neutral and reverse by operating a single shifting rod, and

wherein the gear-position detecting switch is disposed

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so as to detect the neutral and reverse positions with respect to the single shifting rod.

9. The gear position detector for an all-terrain vehicle according to claim 8, wherein the gear-position detecting switch includes a neutral-position detecting switch and a reverse-position detecting switch which are independently mounted from each other.

10. The gear position detector for an all-terrain vehicle according to claim 9, wherein the reverse-position detecting switch is disposed opposite to one axial end of the shifting rod, and

wherein the neutral-position detecting switch is disposed near the same axial end of the shifting rod at a position radially outside the shifting rod.

11. A transmission for an all-terrain vehicle comprising:

a transmission case,

a gear transmission mechanism disposed in the transmission case, the gear transmission mechanism including an axially movable shifting rod and a shifting sleeve to be operated by axially moving the shifting rod to change gear ratio, and

a gear-position detecting switch attached to the transmission case at a position near one axial end of the shifting rod, the gear-position detecting switch being configured to detect a neutral position when the axial end of the shifting rod axially moves to a neutral position and engages the gear-position detecting switch or a reverse position when the axial end of the shifting rod axially moves to a reverse position and engages the gear-position detecting switch.

12. The transmission for an all-terrain vehicle according to claim 11, wherein the gear transmission mechanism can be selectively placed in one of two forward speeds, neutral and reverse by the shifting rod of single, and

wherein the gear-position detecting switch is disposed

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so as to detect the neutral and reverse positions with respect to the single shifting rod.

13. The transmission for an all-terrain vehicle according to claim 12, wherein the gear-position detecting switch includes a neutral-position detecting switch and a reverse-position detecting switch which are independently mounted from each other.

14. The transmission for an all-terrain vehicle according to claim 13, wherein the reverse-position detecting switch is disposed opposite to one axial end of the shifting rod, and

wherein the neutral-position detecting switch is disposed near the same axial end of the shifting rod at a position radially outside of the shifting rod.

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